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(54) Method and apparatus enabling a calling telephone handset to choose a ringing indication(s) to be played and/or shown at a receiving telephone handset

(57) A telephone system includes a plurality of telephone terminals wherein a call that is placed from a calling telephone terminal to a receiving telephone terminal is announced by activating a standard ringing indication at the receiving telephone terminal. A data file is provided having a plurality of different ringing indications therein. These ringing indications include a plurality of sound information that are both different from each other and different from a standard ringing tone, and a plurality of different visual information. When a call is placed from a calling telephone terminal to a receiving telephone terminal, the user at the calling telephone terminal may optionally elect to announce the call at the receiving-telephone-terminal using ringing indication that is selected from the data-file, for example sound information that indicates the identity of the calling-users, and/or visual information that indicates the priority of the call.

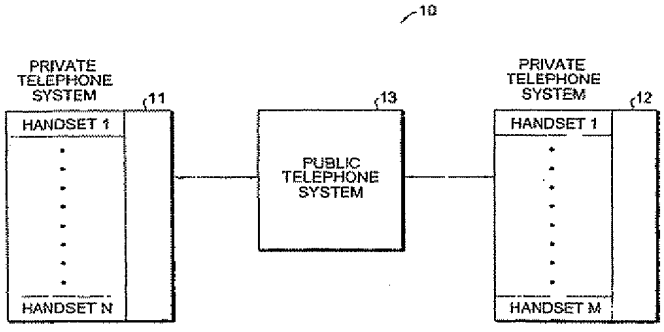

FIG. 1

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such as a wav file, an image file such as bmp, a video file such as mp2, etc.

[0015] When a search path for a file is sent to the receiving telephone terminal, this search path enables the receiving telephone terminal to fetch a ringing indication as was specified by the calling telephone terminal, and this fetched ringing indication is then used to announce the arrival of the call at the receiving telephone terminal by way of the fetched ringing indication; for example, fetched sound information (audio character) and/or fetched visual information (visual character).

[0016] While the invention will be described while making reference to ringing tones and/or visual icons, it is within the spirit and scope of this invention to announce the arrival of the call at the receiving telephone terminal using virtually any form of a wake-up ringing indication, of which sound information and visual information are but two examples.

[0017] While the invention will be described in detail while making reference to a telephone system such as a private or a non-public telephone system, the spirit and scope of the invention is not to be limited to this utility. For example, the invention also finds utility in a global system for mobile communications (GSM).

[0018] In accordance with the invention, the calling user within the telephone system optionally selects ringing information in the form of ringing indication(s) from a data file in a server, in a telephone handset, in the telephone system, before a telephone number is dialed. Upon completion of a connection to a recipient's handset, the selected ringing indication is active at the recipient handset to indicate how to wake up the recipient handset, and the recipient of the call can then use this ringing indication to determine whether or not to immediately answer the incoming telephone call, to record the incoming call for later review, or to ignore the incoming call.

[0019] The use of a ringing indication in the form of visual information is especially useful when the recipient handset's ringing function has been set to a low volume state or to an off state.

[0020] In accordance with this invention, a calling user uses his/her phone to pre-select ringing information in the form of a ringing indication(s) from a data file whose sound information/visual information content is preferably known to all of, or at least some of, the telephone terminal users within the telephone system. As a feature of the invention this selection from the data file may be made by way of a well-known touchscreen. Once the selection(s) has been made, the caller dials the telephone number of the intended receiving user. The ringing information (or digital bits that represent and identify the ringing information) is then sent to the receiving user for example, on a call header that operates to set the receiving telephone terminal to receive the ringing information or to access the identified ringing indication from the data file; i.e., the selected portion of the data file and/or an indication/identification thereof is sent to the receiving telephone terminal. The receiving telephone terminal that is within the telephone system now suspends the call-received process until the ringing information is received by the receiving telephone terminal. The user at the receiving telephone terminal now hears and/or sees the pushed or sent ringing indication at his/her telephone terminal; i.e., the receiving telephone terminal is awakened.

[0021] In accordance with this invention, ringing information, or a ringing information file is sent from a calling telephone to a receiving telephone. When an data address is sent, the data address tells the receiving telephone from where in a data file the ringing indication (for example, sound information and/or visual information) that was selected by the calling telephone is to be fetched (for example, from a data file in the receiving telephone, from a server, by way of a search path, etc.).

[0022] As a feature of the invention, the receiving user may set the receiving telephone terminal to disable operation of the invention, or to store received or incoming calls along with the sent ringing information.

[0023] As an additional feature of the invention, the ringing indication that is active at the recipient handset additionally provides a priority indicator that alerts the recipient of the priority of an incoming call which priority is designated by the sender and assigned at the physical location of the calling handset. As an example of this feature of the invention, a priority bit, or flag, indicates the importance of the call being received as high importance, as low importance, or as normal importance. This priority indication can be provided by visual information that appears on a screen that is associated with the recipient handset, and/or by sound information that is recognized by the recipient as identifying different priority levels (for example, a high importance call, a low importance call, or a normal importance call). In accordance with this feature of the invention, an incoming call can also be labeled as a private call or a business call. In this way, the caller is free to chose the priority of the call, and the recipient of the call remains free to chose how to handle the incoming call.

[0024] In an embodiment of the invention, but without limitation thereto, the invention is implemented in a Wireless Local Area Network (WLAN). The invention is handset or terminal dependent, the invention makes use of sound files and/or visual files, and the invention does not affect the network behavior of another telephone system to which the telephone system may be connected.

[0025] In sending ringing information to a recipient handset, the calling handset utilizes an H.323 setup message by way of which a search path is sent to a data file that is associated with the calling handset and with the recipient handset. The recipient handset then retrieves a user selected ringing indication based upon receiving ringing information from the network server. In a cellular system, the search path to the data file is transmitted in the setup message, and the calling handset

or a multiple office business establishment. Within each LAN 11/12, interconnections are made by way of cables, wires, or radio. LANs 11/12 can also have several known and different configurations or topologies.

[0042] The two telephone systems or LANs 11 and 12 are physically located to service two different commercial organizations, offices, or the like, wherein each individual commercial organization is provided with a plurality of telephone handsets that enable telecommunication within the organization. Telephone system 11 is shown as having the number N of individual telephone handsets, and telephone system 12 is shown as having the number M of individual telephone handsets. By way of example, each telephone handset within a LAN system 11/12 is located in a different user office of a given commercial organization or establishment.

[0043] In accordance with the invention, any calling handset within a telephone system 11/12 can communicate with any other receiving handset within that telephone system, or in the case of a conference call, can communicate with a selected number of receiving handsets within that telephone system, using ringing information that specifies a ringing indication that is selected by the user of the calling handset prior to placing a call to the receiving handset(s).

[0044] As will be apparent in accordance with the invention, the ringing indication that is specified in ringing information can be selected by a calling user from a predefined set of ringing indication as a call is being placed, or the ringing indication that is specified in ringing information can be defined by the calling user as the call is being placed, or the ringing indication that is specified in ringing information can be selected from a predefined set of ringing indications that have been pre-established by the receiving user for utilization in accordance with a call type that is assigned by the calling user as the call is being placed.

[0045] Thereafter, when the calling circuit is completed to the receiving handset, the attention of the user at the location of the receiving handset is captured or awakened by the ringing indication(s). In accordance with a protocol that has been pre-established throughout the telephone system, prior to the receiving user acknowledging the call by picking up the handset, the receiving user is informed of the origin of the call, of the priority of the call, and/or of the occurrence of a special event, all of which are indicated in accordance with the protocol by the ringing indication(s).

[0046] While the invention will be described using "ready made" ringing indications that are stored in electronic storage files 22, it is within the spirit and scope of the invention that a calling user located at a calling handset can provide a self-recorded ringing indication message such as "Happy Birthday" or "Let's go to lunch". In this embodiment of the invention, the self-recorded message is provided during the process of placing a call to a receiving handset, and the self-recorded message is then provided to the receiving user at the location of the receiving handset when the call is received.

[0047] FIG. 2 shows one of the two FIG. 1 LAN telephone systems 11/12. In FIG. 2, LAN telephone system 20 includes a well-known hardware/software telephone system element 21 that is connected to service all of the telephone handset terminals that are within LAN system 20. While LAN systems 11/12 of FIG. 1 and 20 of FIG. 2 are shown as wire-bound systems, within the spirit and scope of this invention these telephone systems can be of the radio telephone type.

[0048] In accordance with the invention, an electronic file, digital storage file, or data file 22 contains a plurality of digital representations of a plurality of different ringing indications that have been established in accordance with the above mentioned protocol. Desirably, this protocol is known to all of the users, or at least some of the users, within LAN system 20 . Details of the audio characteristics and/or the visual characteristics that make up the ringing indications are not important to the spirit and scope of the invention.

[0049] While one electronic storage file 22 is shown as servicing all telephone handsets within LAN 20, it is within the spirit and scope of this invention to also provide such an electronic storage file 22 at the location of all of, or only selected ones of, the individual telephone handsets that are within telephone LAN 20.

[0050] While telephone system 20 services a large number of individual handset terminals, only two handset terminals 23 and 24 are shown in FIG. 2 for purposes of drawing simplicity. Each of the two handset terminals 23, 24 includes a conventional handset 25, a conventional 12-key pad 26, and a conventional visual screen 27. As above stated, each of the two handset terminals 23, 24 may also include a data file 22 in accordance with this invention.

[0051] Assume now that the user at handset 23 desires to place a call to the user at handset 24.

[0052] When the user at handset 23 does not desire to make use of data file 22, this user merely places or "dials" the call in the conventional and well-known manner.

[0053] However, when the user at handset 23 desires to provide a ringing information that specifies a ringing indication to the user at handset 24, the user at handset 23 first selects a ringing indication(s) from data file 22; i.e., the caller uses his/her telephone to select the relevant option(s) from data file 22.

[0054] The manner in which data file 22 is accessed by the user at handset 23 is not critical to the spirit and scope of this invention. For example, handset 23 may be provided with a special access key 28, or the user at handset 23 may access data file 22 by entering a special 4-digit code by way of key pad 26.

[0055] After the user at handset 23 has indicated a desire to make a selection(s) from data file 22, the user selects desired a ringing indication(s) by way of the manual actuation of key pad 26, these key pad entries operating to select the desired ringing indication(s). For

[0068] However, when the incoming call is the result of the operation of FIG. 3 function 323, the YES output 405 of decision function 402 enables function 406 to fetch the selected ringing indication from data file 22, followed by function 407 operating to announce or signal the arrival of the incoming call by playing and/or displaying (i.e., by using) the selected ringing indication at telephone terminal 24, as was selected at function 307 of FIG. 3.

[0069] FIG. 5 shows a screen display 500 that appears at one of screens 27 of FIG. 2 handset terminals 23, 24, this figure showing four missed calls that have been stored at a receiving handset terminal, along with the name of the person originating each call, the time of arrival of each call, and in the case of three of the calls, a priority icon for each of the three calls.

[0070] As explained above, for the first-listed call received at 12:32, a calling user Mary Hoppins selected a normal priority icon 501 from data file 22 prior to completing the call. By way of example only, normal priority icon 501 is a vertically-extending line. Of course, this first-listed call may have been accompanied by ringing information such as ringing indication that was selected from data file 22, but the receiving user either was not present at the time the call was received, or the receiving user elected to ignore the incoming call.

[0071] For the second-listed call received at 12:15, a calling user Mike O'Connor made no selection from data file 22 prior to completing the call. Again, this second-listed call may have been accompanied by ringing indication that was selected from data file 22.

[0072] For the third-listed call received at 11:14, a calling user Pete Jones selected a low-priority icon 502 from data file 22 prior to completing the call. By way of example only, low-priority icon 502 is a vertically-extending and down-pointing arrow. Again this third-listed call may have been accompanied by ringing indication that was selected from data file 22.

[0073] For the fourth-listed call received at 10:00, a calling-user Jane Doe selected a high-priority icon 503 from data file 22 prior to completing the call. By way of example only, high-priority icon 503 is a well-known exclamation symbol. Again this third-listed call may have been accompanied by ringing indication that was selected from data file 22.

[0074] FIG. 6 shows an embodiment of the invention wherein the ringing indication (sound and/or visual) that is activated at a receiving telephone terminal is a ringing indication that has been predefined by the receiving user in accordance with the class of the incoming call, which call class is assigned by the calling user as the call is placed to the receiving user.

[0075] In this FIG. 6 embodiment of the invention, at least some of the system users have loaded a data file 22 in order to identify what type of ringing indication they wish to have activated at their telephone terminal in accordance with a tag or a sign that has been appended to an incoming call by a calling user.

[0076] That is, the calling user selectively operates, prior to dialing the telephone number of the receiving telephone terminal, to append a tag or a sign as ringing information that operates to identify a call type. For example, the calling user may tag or sign the call to be placed as a business call, a personal call, a private call, a priority call, etc.

[0077] In accordance with this embodiment of the invention, the receiving user has pre-programmed the receiving telephone terminal to interrogate all incoming calls to determine if the ringing information of incoming call contains a tag or a sign. If no such tag or sign is found, the incoming call is announced at the receiving telephone terminal by the sounding of a standard ringing tone. However, when a tag or sign is found, then the sound information and/or the visual information that is used to announce the incoming call is in accordance with the ringing indication that the receiving user has predefined for the type of call that is defined by the found tag or sign.

[0078] With reference to FIG. 6, at event 600, a calling user operates to tag or to sign a call that is to be placed to a given receiving user. After the call has been tagged or signed, the calling user operates at event 601 to dial the telephone number of the telephone terminal that is at the physical location of the given receiving user.

[0079] At event 602, the incoming call is received at the receiving telephone terminal whose number was dialed at event 601, and the receiving telephone terminal operates to interrogate the incoming call to determine if the incoming call contains a call type tag or a call type sign.

[0080] When no such tag or sign is found in the incoming call, the NO output 603 of decision event 604 operates at event 605 to announce the incoming call by sounding a standard ringing tone at the receiving telephone terminal.

[0081] However, when such a tag or sign is found in the incoming call by decision event 604, its YES output 606 enables event 607 to fetch a ringing indication(s) from data file 22, which ringing indication(s) has been predefined by the user at the receiving telephone terminal in accordance with a plurality of tags or signs that may be selectively appended to incoming calls by calling users.

[0082] Appendix A comprises three selected pages taken from a document entitled Session Initiation Protocol. Appendix A is related to the above-described priority of a call.

[0083] The present invention has been described in detail while making reference to preferred embodiment thereof. Since it is known that others skilled in the related art will, upon learning of this invention, visualize yet other embodiments that are within the spirit and scope of this invention, the above detailed description is not to be taken as a limitation on the spirit and scope of this invention.

information that are each different than said standard ringing indication and that each identify a user of a telephone within the telephone system.

11. The method of claim 5, and comprising:

providing a data file that contains the plurality of different ringing information that specifies ringing indications; and
enabling the selection that specifies a ringing indication to be selected from said data file as a call is placed to said receiving telephone.

12. The method according to any of claims 5-11, wherein said plurality of different ringing indications individually correspond to a plurality of different call classes, and wherein said selected ringing information is defined by said calling telephone defining a call class for said call placed to said receiving telephone.

13. Apparatus enabling a receiving telephone handset to choose a ringing information that specifies a ringing indication to be activated thereat in accordance with a call type of an incoming call, comprising:

a telephone system including a plurality of telephone handsets for selectively placing a call from a calling telephone handset to a receiving telephone handset, the placed call normally being announced by activating a standard ringing indication at said receiving-telephone handset;
a data file containing a plurality of different ringing indications that are both different from each other and different from said standard ringing indication;
each of said plurality of different ringing indications being indicative of a different call type, and each of said plurality of different ringing indications being defined by a user at said receiving-telephone handset;
means at said calling-telephone handset optionally enabling a user at said calling-telephone handset to specify a call type as a call is placed to said receiving-telephone handset;
means at said receiving-telephone handset responsive to failure of said user at said calling-telephone handset to select a call type and operable to activate said standard ringing indication at said receiving-telephone handset to announce said placed call; and
means at said receiving-telephone handset responsive to said user at said calling-telephone handset selecting a call type and operable to select a ringing information that specifies a ringing indication and to activate said selected ringing information that specifies indication at said receiving-telephone handset to announce said placed call.

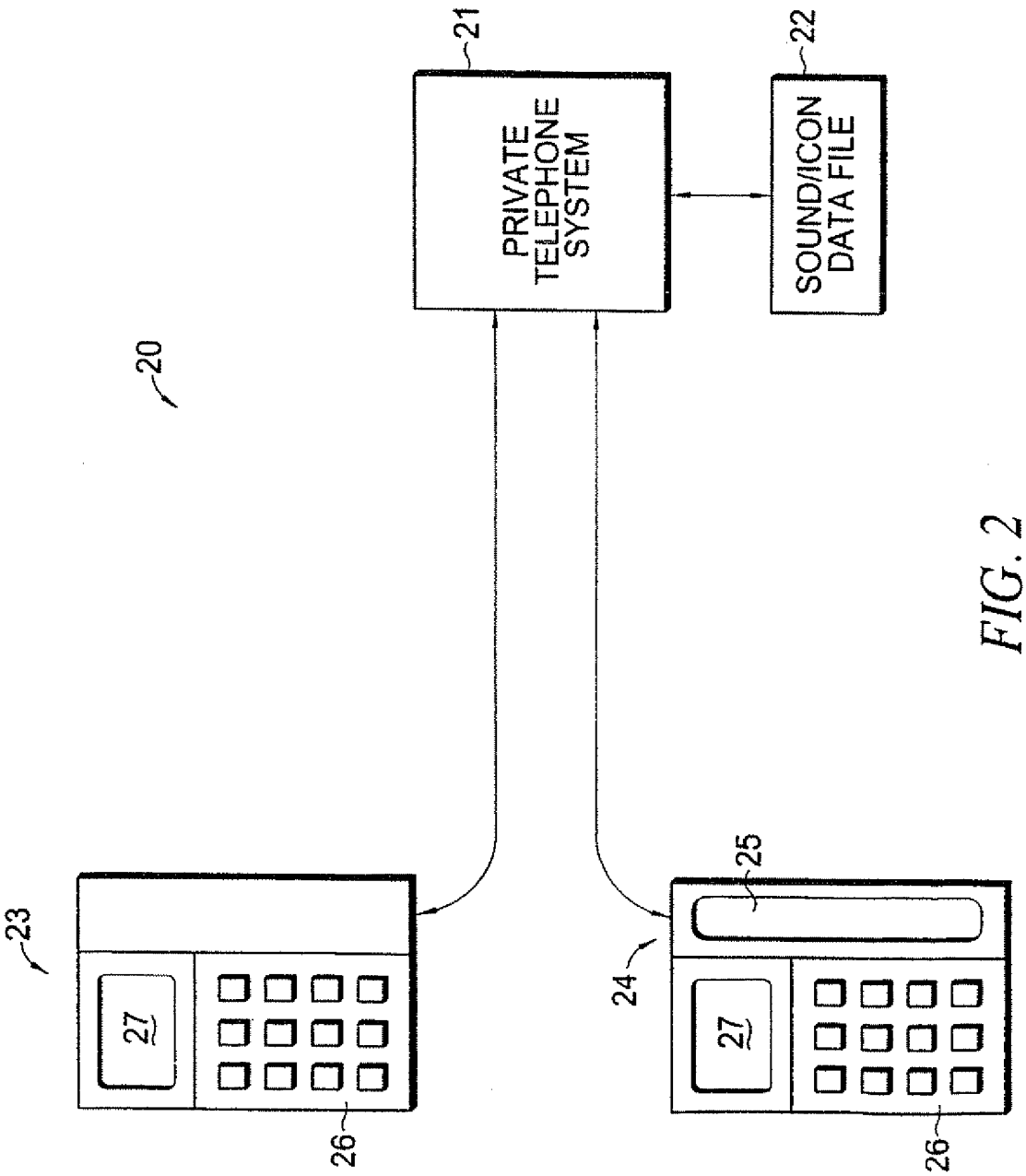

FIG. 2

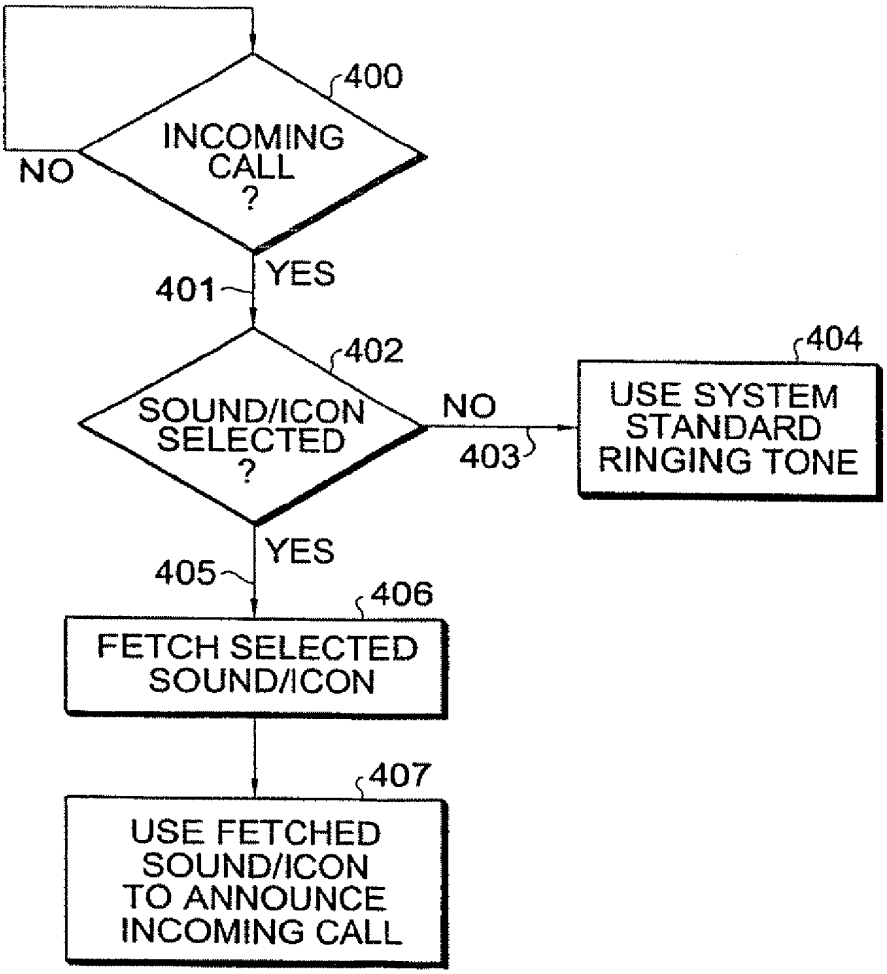

FIG. 4

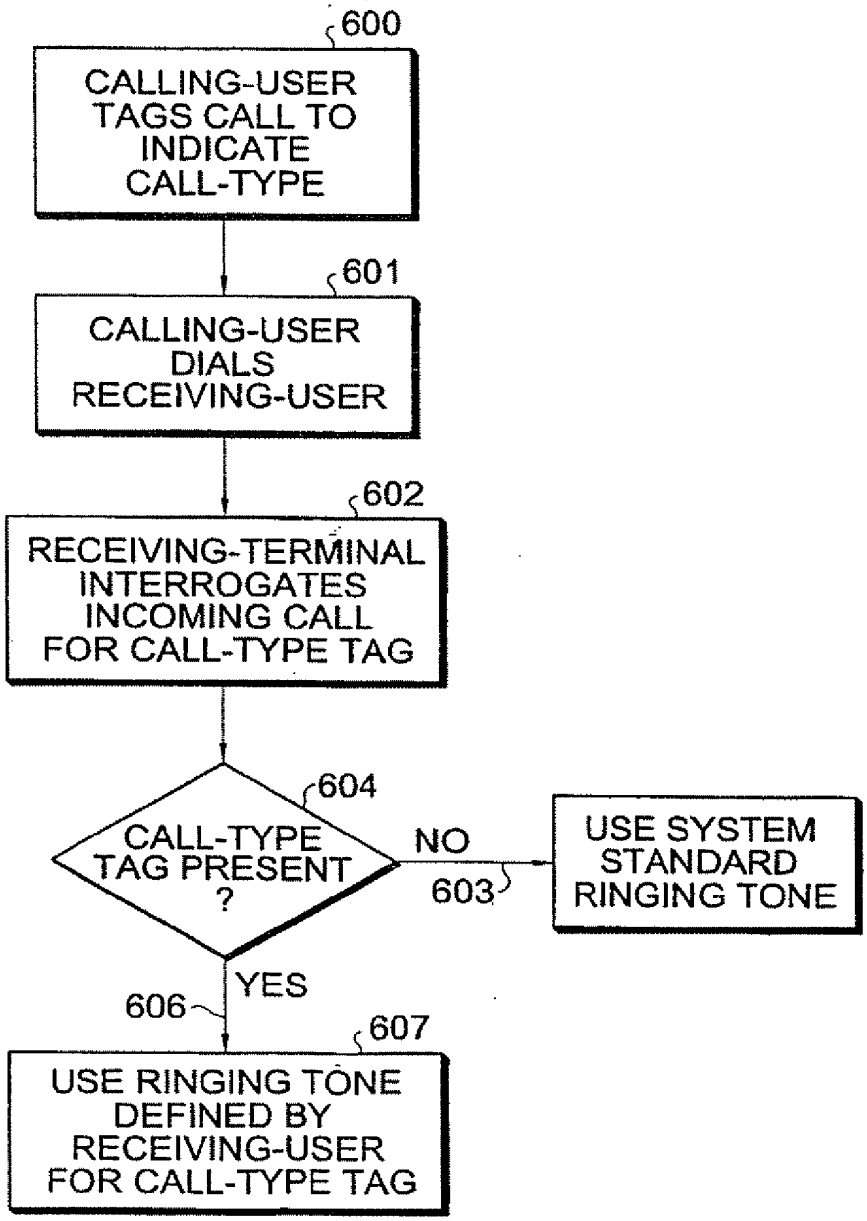

FIG. 6

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 00 66 0233

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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